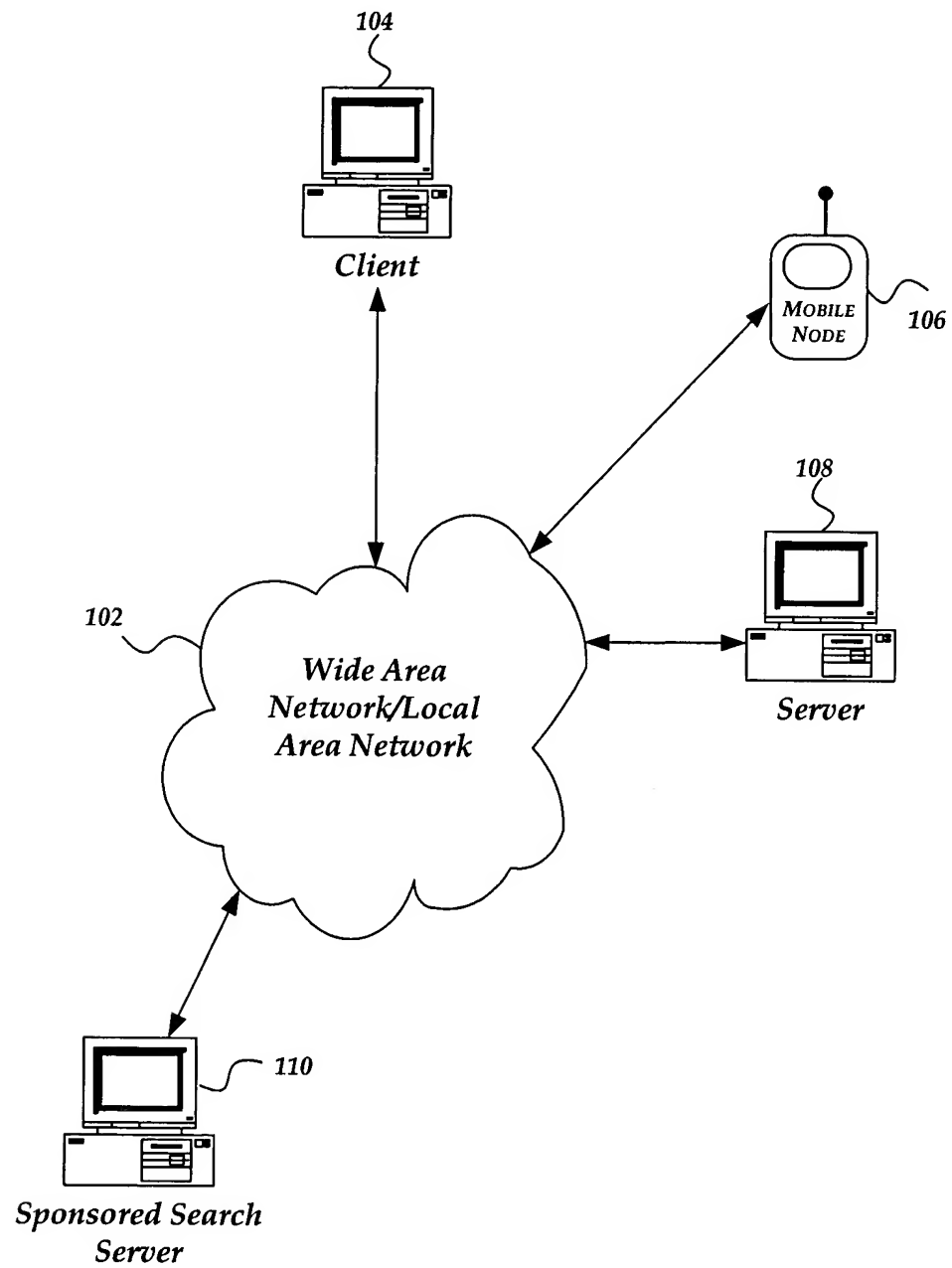


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**FIG. 1**

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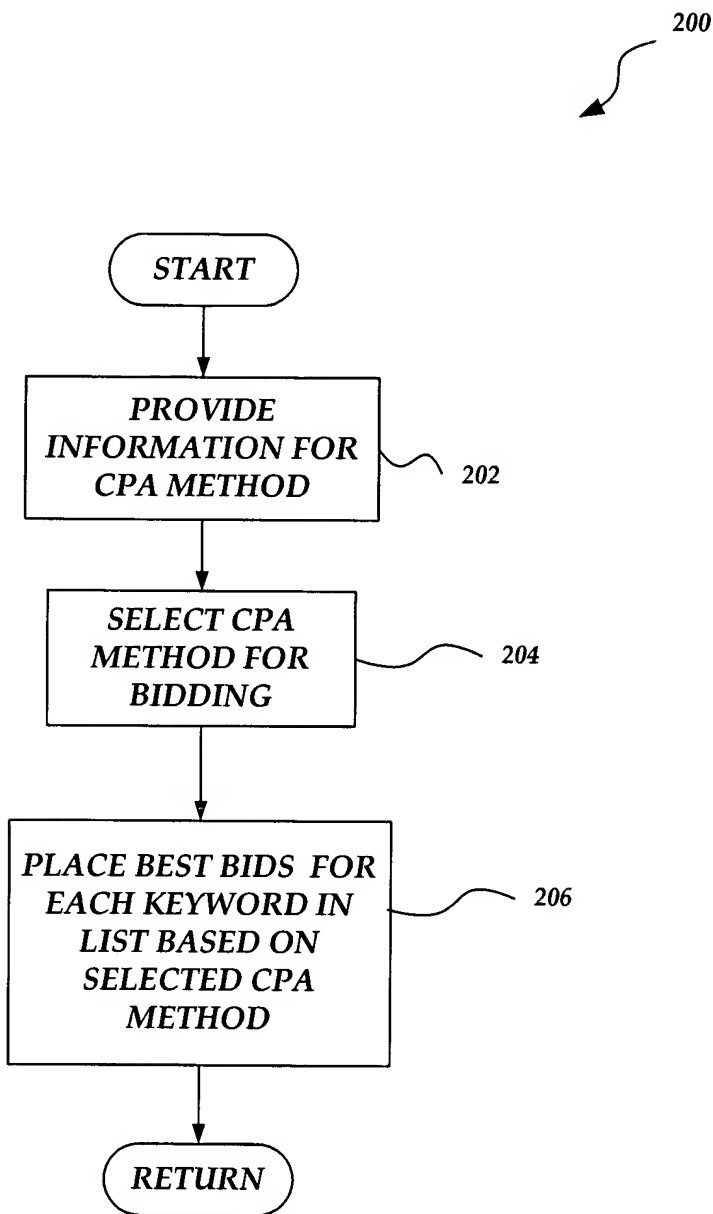


FIG. 2

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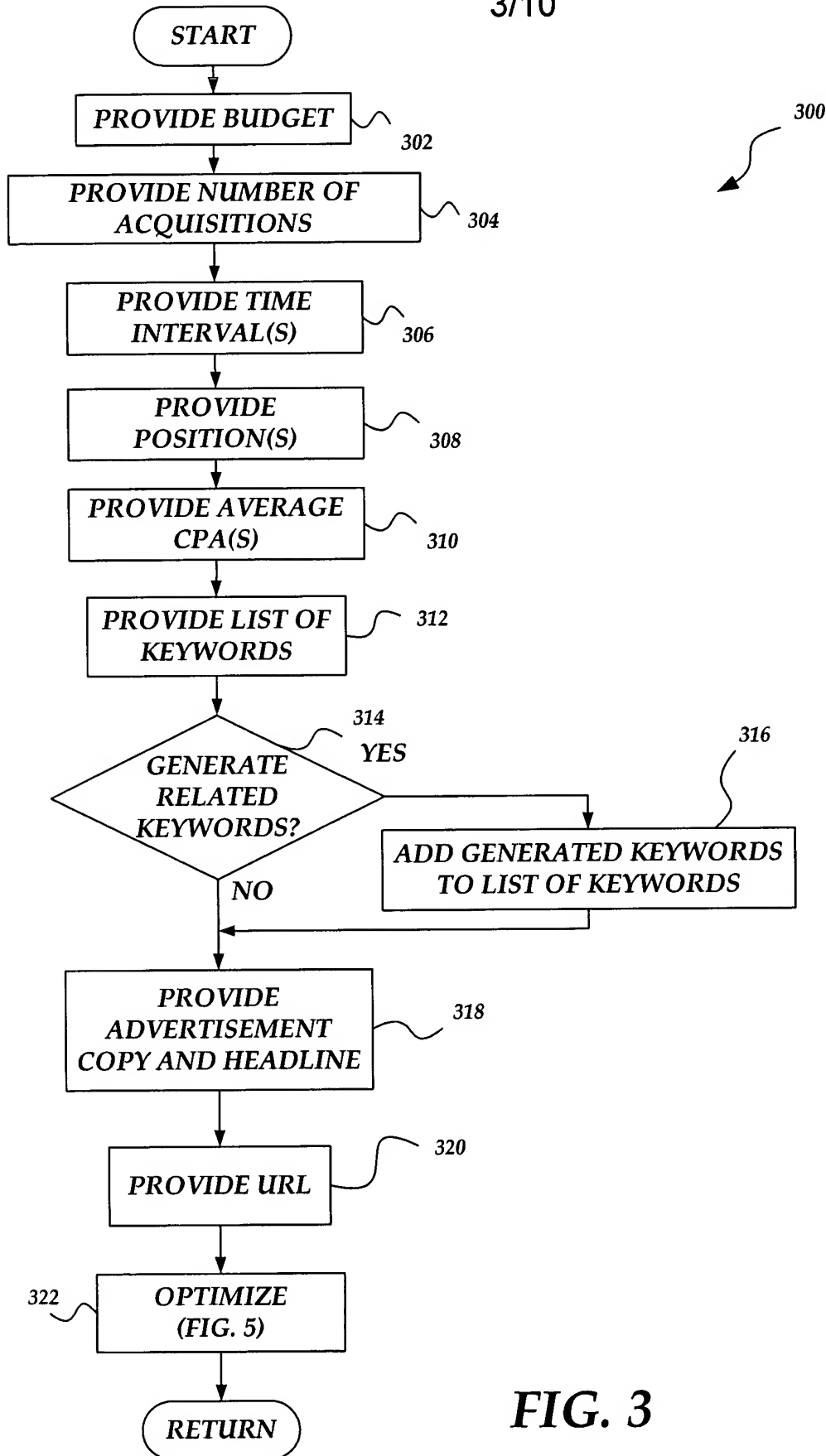


FIG. 3

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400

DESIRED NUMBER OF CLICKS

MONTHLY BUDGET

FIXED NUMBER OF CLICKS PER DAY?

YES NO CLICKS PER DAY

FIXED BUDGET PER DAY?

YES NO BUDGET PER DAY

ADVERTISEMENT

HEADLINE

DESCRIPTION

URL

TIMEZONE START TIME STOP TIME

POSITION

RELEVANT KEYWORDS

RELATED KEYWORDS

SELECT CPA METHOD

OPTIMIZE

FIG. 4

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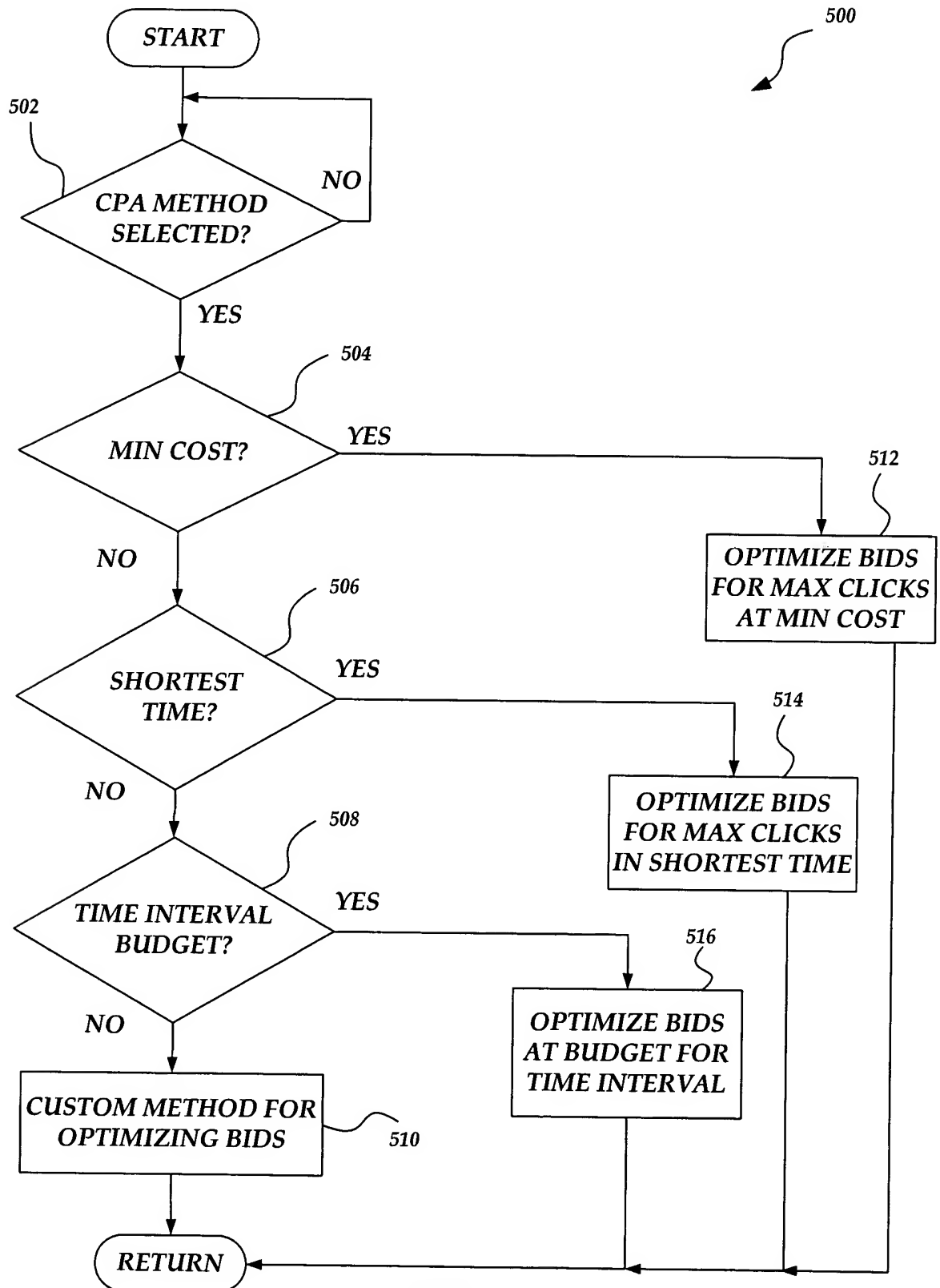


FIG. 5

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```
// Program Inputs
maxClicks = input(Advertiser specified max click goal);
moneyRemaining = input(Advertiser's monthly budget);

// Program Outputs
// Spending Cap for all keywords and time intervals
SpendCap(k,i) - Spend cap for keyword k, time interval i

// Bids for all keywords and time intervals
Bid(k,i) - Bids for keyword k, time interval i

// Estimated position for all keywords and time intervals
EstimatedPosition(k,i) - Estimated position for keyword k, time interval i

// Estimated Clicks for all keywords and time intervals
EstimatedClicks(k,i) - Estimated Clicks for keyword k, time interval i

// Program starts here
// This is a greedy algorithm. It tries to allocate money in the most cost efficient manner possible. It greedily
// tries to buy clicks at the cheapest CPC possible without worrying about which time period it is for or what
// keyword it is or what position the advertisement gets listed.

Table T = Order table H above by ascending order of Average CPC amounts;
// Lowest average CPCs are listed before highest average CPC irrespective of the keyword or positions //
used.

totalProjSpend = 0; // Initially the projected spend is 0
totalProjClicks = 0; // Initially no clicks are allocated

// k - keyword, i - time interval, j - position
foreach row r(k,i,j) in T
{
    // How many more clicks can we use before we hit the Max Click
    // goal specified by the Advertiser?
    clicksRemaining = maxClicks - totalProjClicks;

    // Clicks to use up in time period ti, for keyword k, position j.
    // c(k,i,j) is the clicks available .
    // Use the lesser of clicks available in the time interval or
    // remaining click goal.
    clicksToUse = min( clicksRemaining, c(k,i,j) );

    // If Money remaining is not enough to use up all the clicks available
    // in this time period, use as many clicks as the money remaining allows.
    // a(k,i,j) is the average cost per click.
    if ( moneyRemaining < clicksToUse X a(k,i,j) ) {
        // not enough money, reduce the clicks
        clicksToUse = floor( moneyRemaining / a(k,i,j) );
    }

    SpendCap(k,i) = clicksToUse X a(k,i,j);
    Bid(k,i) = f(a(k,i,j)); // f is a function of average cost per click
    EstimatedClicks(k,i) = clicksToUse;
    EstimatedPosition(k,i) = j;

    moneyRemaining = moneyRemaining - SpendCap(k,i);
    totalProjSpend = totalProjSpend + SpendCap(k,i);
    totalProjClicks = totalProjClicks + clicksToUse;
}

Output( Bid(k,i), SpendCap(k,i), EstimatedClicks(k,i), EstimatedPosition(k,i), totalProjSpend, totalProjClicks,
moneyRemaining);

// Note - Not all money may be spent if not enough clicks are projected for all the keywords specified.
```

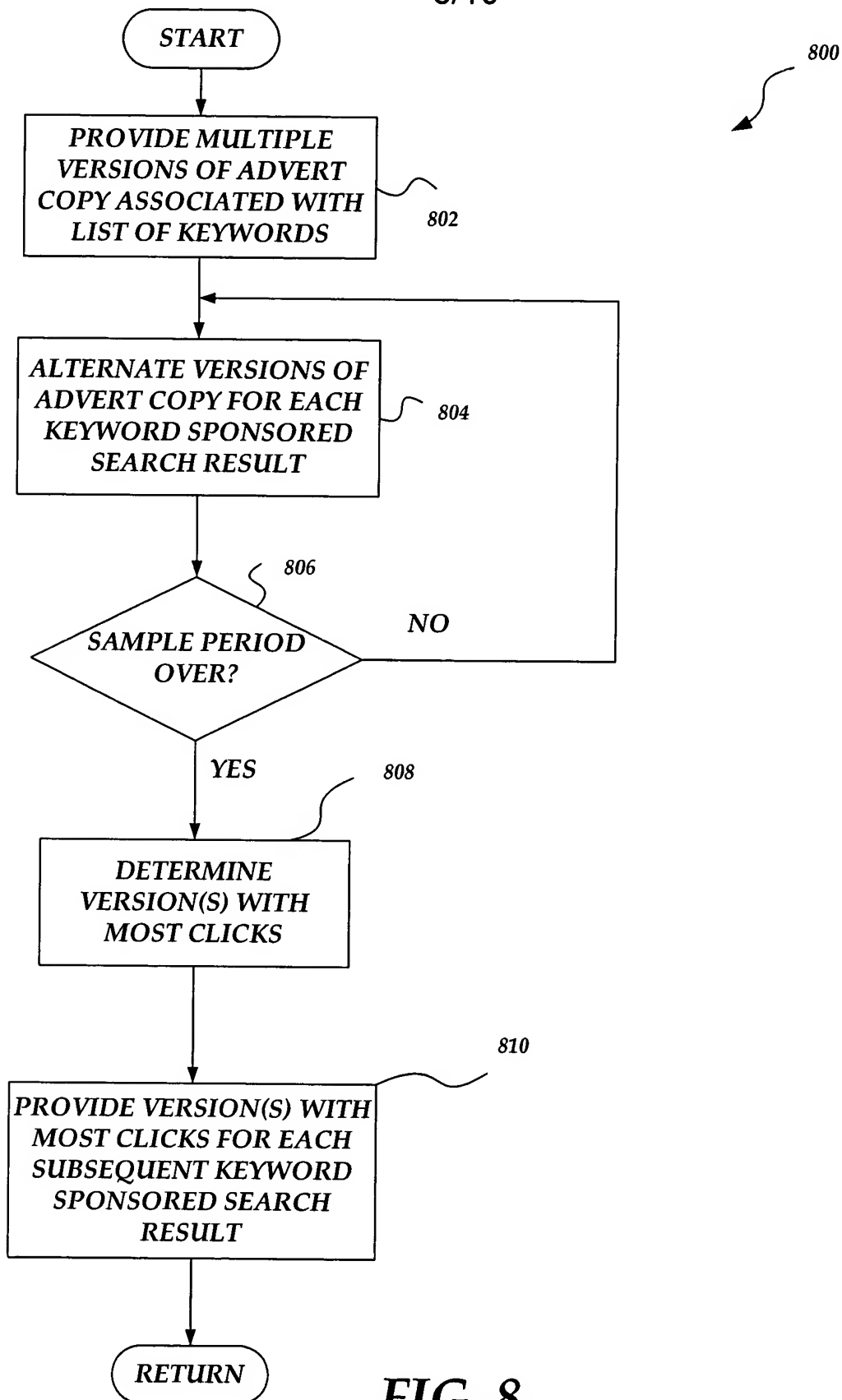
FIG. 6

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<u>KEYWORD</u>	<u>TIME INTERVAL</u>	<u>POSITION</u>	<u>AVERAGE CPC</u>	<u>CLICKS AVAILABLE</u>
kw1	t1	p1	a(1,1,1)	c(1,1,1)
kw1	t1	p2	a(1,1,2)	c(1,1,2)
...	...	...	...	...
kw1	t2	p1	a(1,2,1)	c(1,2,1)
kw1	t2	p2	a(1,2,2)	c(1,2,2)
...	...	...	...	...
...	...	...	...	...
kw2	t1	p1	a(2,1,1)	c(2,1,1)
kw2	t1	p2	a(2,2,2)	c(2,2,2)
kwk	ti	pj	a(k,i,j)	c(k,i,j)

**FIG. 7**

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900

Search Term <input type="button" value="Delete"/>		Listing Title	Your Bid <input type="button" value="Revise Bid"/>	Est. Position <sup>①</sup>	Est. Clicks/Day <sup>②</sup>	Est. Daily Cost <sup>③</sup>
<input type="checkbox"/>	data recovery	<a href="#">Data recovery</a>	\$ <input type="text" value="0.35"/>	3	50	\$17.50
<input type="checkbox"/>	disk doctor	<a href="#">Data recovery</a>	\$ <input type="text" value="0.33"/>	3	45	\$14.85
<input type="checkbox"/>	hard disk recovery	<a href="#">Data recovery</a>	\$ <input type="text" value="0.22"/>	1	20	\$4.40
<input type="checkbox"/>	data recovery software	<a href="#">Data recovery</a>	\$ <input type="text" value="0.28"/>	4	14	\$3.92
<input type="checkbox"/>	free data recovery software	<a href="#">Data recovery</a>	\$ <input type="text" value="0.15"/>	1	12	\$1.80
<input type="checkbox"/>	disk disaster recovery	<a href="#">Data recovery</a>	\$ <input type="text" value="0.19"/>	1	9	\$1.71
<input type="checkbox"/>	data loss recovery	<a href="#">Data recovery</a>	\$ <input type="text" value="0.08"/>	1	10	\$0.80
<input type="checkbox"/>	hard drive data recovery	<a href="#">Data recovery</a>	\$ <input type="text" value="0.09"/>	1	6	\$0.54
<input type="checkbox"/>	disk backups	<a href="#">Disk backups</a>	\$ <input type="text" value="0.26"/>	2	80	\$20.80
<input type="checkbox"/>	disk backup software	<a href="#">Disk backups</a>	\$ <input type="text" value="0.32"/>	4	37	\$11.84
<input type="checkbox"/>	hard disk backups	<a href="#">Disk backups</a>	\$ <input type="text" value="0.12"/>	1	30	\$4.32
<input type="checkbox"/>	backup disk image	<a href="#">Disk backups</a>	\$ <input type="text" value="0.12"/>	1	12	\$1.44
<input type="checkbox"/>	disk to disk backup	<a href="#">Disk backups</a>	\$ <input type="text" value="0.06"/>	1	8	\$0.80
Total (daily)					333	\$83.29
Total (monthly)					9990	\$2498.70

FIG. 9

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1000



<u>MONTH</u> <u>YEAR</u>	<u>EST.</u> <u>MONTH</u> <u>COST</u>		<u>1</u> <u>ACTUAL</u> <u>DAILY</u> <u>COST</u>	<u>2</u> <u>ACTUAL</u> <u>DAILY</u> <u>COST</u>	<u>3</u> <u>ACTUAL</u> <u>DAILY</u> <u>COST</u>	<u>4</u> <u>ACTUAL</u> <u>DAILY</u> <u>COST</u>
<u>5</u> <u>ACTUAL</u> <u>DAILY</u> <u>COST</u>	<u>6</u> <u>ACTUAL</u> <u>DAILY</u> <u>COST</u>	<u>7</u> <u>ACTUAL</u> <u>DAILY</u> <u>COST</u>	<u>8</u> <u>ACTUAL</u> <u>DAILY</u> <u>COST</u>	<u>9</u> <u>ACTUAL</u> <u>DAILY</u> <u>COST</u>	<u>10</u> <u>ACTUAL</u> <u>DAILY</u> <u>COST</u>	<u>11</u> <u>ACTUAL</u> <u>DAILY</u> <u>COST</u>
<u>12</u> <u>ACTUAL</u> <u>DAILY</u> <u>COST</u>	<u>13</u> <u>ACTUAL</u> <u>DAILY</u> <u>COST</u>	<u>14</u> <u>ACTUAL</u> <u>DAILY</u> <u>COST</u>	<u>15</u> <u>ACTUAL</u> <u>DAILY</u> <u>COST</u>	<u>16</u> <u>EST.</u> <u>DAILY</u> <u>COST</u>	<u>17</u> <u>EST.</u> <u>DAILY</u> <u>COST</u>	<u>18</u> <u>EST.</u> <u>DAILY</u> <u>COST</u>
<u>19</u> <u>EST.</u> <u>DAILY</u> <u>COST</u>	<u>20</u> <u>EST.</u> <u>DAILY</u> <u>COST</u>	<u>21</u> <u>EST.</u> <u>DAILY</u> <u>COST</u>	<u>22</u> <u>EST.</u> <u>DAILY</u> <u>COST</u>	<u>23</u> <u>EST.</u> <u>DAILY</u> <u>COST</u>	<u>24</u> <u>EST.</u> <u>DAILY</u> <u>COST</u>	<u>25</u> <u>EST.</u> <u>DAILY</u> <u>COST</u>
<u>26</u> <u>EST.</u> <u>DAILY</u> <u>COST</u>	<u>27</u> <u>EST.</u> <u>DAILY</u> <u>COST</u>	<u>28</u> <u>EST.</u> <u>DAILY</u> <u>COST</u>	<u>29</u> <u>EST.</u> <u>DAILY</u> <u>COST</u>	<u>30</u> <u>EST.</u> <u>DAILY</u> <u>COST</u>	<u>31</u> <u>EST.</u> <u>DAILY</u> <u>COST</u>	

FIG. 10